

\* =mandatory field)

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  - **Dataset\_Info:**
    - Dataset\_ID\*: [TAO170W\\_0N\\_Aug2008\\_Jun2009](#)
    - **Submission\_Dates:**
      - Initial\_Submission: [20101028](#) (YYYYMMDD)
      - Revised\_Submission: [20130827](#) (YYYYMMDD)
  - **Cruise\_Info:**
    - **Experiment:**
      - Experiment\_Name\*:
      - **Cruise:( - )**
        - Cruise\_ID: (EXPOCODE)
        - Section: (Leg)
        - **Geographical\_Coverage:**
          - Geographical\_Region:
          - **Bounds:**
            - Westernmost\_Longitude:  
Enter decimal fractions of degrees:  
or Degrees, Minutes, Seconds:
            - Easternmost\_Longitude:  
Enter decimal fractions of degrees: [-170.05](#) (+ = E, - = W)  
or Degrees, Minutes, Seconds:
            - Northernmost\_Latitude:  
Enter decimal fractions of degrees: [-0.04](#) (+ = N, - = S)
            - Southernmost\_Latitude:  
Enter decimal fractions of degrees:
      - **Temporal\_Coverage:**
        - Start\_Date: [20080826](#) (YYYYMMDD)
        - End\_Date: [20090601](#) (YYYYMMDD)
  - **Vessel:** [Mooring platform](#)
    - Vessel\_Name:
    - Vessel\_ID:
    - Country:
    - Vessel\_Owner:
- **Variables\_Info:**
  - **Variable:**
    - Variable\_Name and Description\*:
- [xCO<sub>2</sub> SW \(wet\) \(umol/mol\) - Mole fraction of CO<sub>2</sub> in air in equilibrium with the seawater at sea surface temperature and measured humidity.](#)
- [CO<sub>2</sub> SW QF – Quality Flag for xCO<sub>2</sub> SW \(wet\).](#)
- [H<sub>2</sub>O SW \(mmol/mol\) - Mole fraction of H<sub>2</sub>O in air from equilibrator .](#)
- [xCO<sub>2</sub> Air \(wet\) \(umol/mol\) - Mole fraction of CO<sub>2</sub> in air from airblock, 4 feet above the sea surface at measured humidity.](#)
- [CO<sub>2</sub> Air QF – Quality Flag for xCO<sub>2</sub> Air \(wet\)](#)
- [H<sub>2</sub>O Air \(mmol/mol\) - Mole fraction of H<sub>2</sub>O in air from airblock, 4 feet above the sea surface.](#)

- Licor Atm Pressure (hPa) – Atmospheric pressure at the airblock, 4 feet above the sea surface
- Licor Temp (C) – Temperature of the Infrared Licor 820 in degrees Celsius
- % O<sub>2</sub> - The percent oxygen of the surface seawater divided by the percent oxygen of the atmosphere at 4 feet above the sea surface. Disclaimer: The oxygen measurement is made in the equilibrated air. We have found that the oxygen does not come to complete equilibrium so any rapid changes in oxygen do not get properly captured using this system. Therefore, we tend to use the oxygen data only as a qualitative sense of the biology. It is not a quantitative measure.
- SST (C) - Sea Surface Temperature collected by NOAA/PMEL/TAO provide internally recorded SST data at 10 minute resolution. The sea surface temperature collected during the equilibration period is reported in this dataset. NOAA/PMEL/TAO advises to check the TAO site at the time of use for the most accurate data available.
- Salinity - Sea Surface Salinity collected by NOAA/PMEL/TAO. Papa records conductivity data at 10 minute intervals and then computes hourly averaged salinity during post-processing. Daily data was only available at time of CO<sub>2</sub> QC. NOAA/PMEL/TAO advises to check the TAO site at the time of use for the most accurate data available.
- xCO<sub>2</sub> SW (dry) (umol/mol) – Mole fraction of CO<sub>2</sub> in air in equilibrium with the seawater at sea surface temperature (dry air).
- xCO<sub>2</sub> Air (dry) (umol/mol) – Mole fraction of CO<sub>2</sub> in air at the airblock, 4 feet above the sea surface (dry air).
- fCO<sub>2</sub> SW (sat) uatm – Fugacity of CO<sub>2</sub> in air in equilibrium with the seawater at sea surface temperature (100% humidity). Since the measurements are taken at the sea surface, warming calculations are not necessary.
- fCO<sub>2</sub> Air (sat) uatm – Fugacity of CO<sub>2</sub> in air at the airblock, 4 feet above the sea surface (100% humidity).
- dfCO<sub>2</sub> – Difference of the fugacity of the CO<sub>2</sub> in seawater and the fugacity of the CO<sub>2</sub> in air (fCO<sub>2</sub> SW - fCO<sub>2</sub> Air).
- **Method\_Description:**
  - **Equilibrator\_Design:**
    - Equilibrator\_Type: (show pick list) Bubble Equilibrator
    - Equilibrator\_Volume: (L) N/A
    - Water\_Flow\_Rate: (L/min) N/A
    - Headspace\_Gas\_Flow\_Rate: (L/min) ~600 cc/min
    - Vented: (show pick list) Yes
  - Measurement\_Method: Absolute, non-dispersive infrared (NDIR) gas analyzer
  - Manufacturer\_of\_Calibration\_Gas: NOAA Earth System Research Laboratory (ESRL)
  - **CO<sub>2</sub>\_Sensors:**
    - **CO<sub>2</sub>\_Sensor:**
      - Manufacturer: Licor
      - Model: Environmental\_Control: LI-820
      - Resolution: 0.01 ppm
      - Uncertainty: < 2.5% of reading with 14 cm bench (stated)  
<1.5 ppm determined in lab
    - CO<sub>2</sub>\_Sensor\_Calibration: (For each calibration gas, document traceability to an internationally recognized scale, including date and place of last calibration. Include uncertainty of assigned value.)  
At the beginning of each sample, the instrument self-calibrates using a zero and high standard. The zero standard is generated by cycling a small amount of air through a soda lime chamber. The high standard is from a cylinder of calibrated standard reference gas, 533.57 umol/mol, from ESRL. ESRL

standards are traceable to WMO x93 scale with a stated reproducibility of 0.06 micromole/mole.

- **Other\_Sensors:**
  - Manufacturer: Oxygen Sensor  
Maxtec
  - Model: Max-250
  - Resolution: 0.01 %
  - Uncertainty:  $\pm 2.0\%$  Full Scale over operating temperature range  
 $\pm 1.0\%$  Full Scale @ constant temperature and pressure
  - Calibration: (For each sensor of pressure, temperature, and salinity, document traceability to an internationally recognized scale, including date and place of last calibration.)  
Factory calibrated before purchase. Recalibrated to sea level atmospheric air every 7 days.
- **Other\_Sensors:**
  - Manufacturer: Humidity Sensor  
Sensirion
  - Model: SHT71
  - Resolution: 0.01 %
  - Uncertainty: Measurement range: 0-100% RH  
Absolute RH accuracy:  $\pm 3\%$  RH (20-80% RH)  
Repeatability RH:  $\pm 0.1\%$  RH
  - Calibration: (For each sensor of pressure, temperature, and salinity, document traceability to an internationally recognized scale, including date and place of last calibration.)  
Factory calibrated before purchase.
- Method\_References: (Publication(s) describing method)

Sabine, C. (2005): High-resolution ocean and atmosphere pCO<sub>2</sub> time-series measurements. The State of the Ocean and the Ocean Observing System for Climate, Annual Report, Fiscal Year 2004, NOAA/OGP/Office of Climate Observation, Section 3.32a, 246–253.

- Additional Information

- All measurements are at sea surface temperature and atmospheric pressure.
- During the equilibration cycle, a closed loop of air equilibrates with seawater for 10 minutes. Once the equilibration period is complete, the pump stops and the system opens to the atmosphere allowing the pressure to equilibrate with atmospheric pressure. Measurements are recorded for 30 seconds at 2 hertz and then averaged.
- During the air cycle, fresh air is pumped through the detector for 1 minute. Once the pump stops, the system opens to the atmosphere allowing the pressure to equilibrate with atmospheric pressure. Measurements are recorded for 30 seconds at 2 hertz and then averaged.
- The gas streams for both the air cycle and equilibrator cycle are partially dried before entering the detector. The values listed as wet xCO<sub>2</sub> generally have relative humidity levels ranging from 40 to 80 percent. The humidity levels increase over the course of a deployment.
- Sampling occurs every 3 hours. The infrared detector is calibrated at the beginning of every sampling period. Averaged data and standard deviations for each measurement are transmitted back daily.
- To calculate the dry measurements, the water mole fraction in the Licor detector must be known. A relative humidity sensor is located immediately downstream of the detector.

- As part of the QC process, each data set is compared with the Marine Boundary Layer (MBL) data from GlobalView-CO<sub>2</sub>. The CO<sub>2</sub> air data from this deployment, Aug 2008 to Jun 2009, were  $-2.1 \pm 2.0$  umol/mol on average of the MBL data and therefore no correction was applied to the data.

GLOBALVIEW-CO<sub>2</sub>: Cooperative Atmospheric Data Integration Project - Carbon Dioxide. CD-ROM, NOAA ESRL, Boulder, Colorado [Also available on Internet via anonymous FTP to ftp.cmdl.noaa.gov, Path: ccg/co2/GLOBALVIEW], 2010

- During the QC process, an adjustment to the Licor pressure is also made based on each sensor's bias to barometric pressure as measured in the lab. For this system, the Licor pressure was adjusted by -0.01 kPa

- The standard reference gas ran out on 4/12/09 9:00. Missing reference gas coefficients were recalculated using the correlation between Licor temperature and the coefficients from the beginning of the deployment until the gas ran out. xCO<sub>2</sub> air and sw (wet) after 4/12/09 9:00 were then recalculated using these recalculated coefficients. When span ran out, the system also measured 32 umol/mol low for the remainder of the deployment, so the CO<sub>2</sub> sw and air data was also lifted by 32 umol/mol between 4/12/09 and 6/1/09.

- No data = -9.999 or -999

- Data\_set\_References: (Publication(s) describing data set) **None**
- Citation: (How to cite this data set) **Sutton, A., C. Sabine, and S. Maenner. 2009. High-resolution ocean and atmosphere pCO<sub>2</sub> time-series measurements from mooring TAO 0°, 170°W.**

• **Data\_Set\_Link:**

- URL\*: [http://www.pmel.noaa.gov/co2/moorings/eq\\_pco2/eq\\_pco2.htm](http://www.pmel.noaa.gov/co2/moorings/eq_pco2/eq_pco2.htm)
- Label\*: **PMEL CO2 Group – TAO170W mooring**

- Link\_Note: (Optional instructions or remarks)(m s t)

Quality Flags definitions:

- 2 = Acceptable measurement;
- 3 = Questionable measurement;
- 4 = Bad measurement
- 5 = Not reported;
- 9 = Sample not drawn for this measurement from this bottle.

**Quality Flag Log for this dataset.**

Date	Measurement	Value (Dry)	Flag	Comments
9/24/2008 21:17	xCO <sub>2</sub> _SW	473.8114628	4	bad measurement due to change in equil pump pressure - evidence that buoy may have been tugged on
9/25/2008 0:17	xCO <sub>2</sub> _SW	650.6401841	4	bad measurement due to change in equil pump pressure - evidence that buoy may have been tugged on
9/25/2008 3:17	xCO <sub>2</sub> _SW	479.4429327	4	bad measurement due to change in equil pump pressure - evidence that buoy may have been tugged on
9/25/2008 6:17	xCO <sub>2</sub> _SW	471.4616745	4	bad measurement due to change in equil pump pressure - evidence that buoy may have been tugged on
9/25/2008 9:17	xCO <sub>2</sub> _SW	477.483371	4	bad measurement due to change in equil pump pressure - evidence that buoy may have been tugged on
9/25/2008 12:17	xCO <sub>2</sub> _SW	523.889936	4	bad measurement due to change in equil pump pressure - evidence that buoy may have been tugged on

9/25/2008 15:17	xCO2_SW	562.525777	4	bad measurement due to change in equil pump pressure - evidence that buoy may have been tugged on
10/2/2008 21:17	xCO2_SW	479.2884872	3	CO2 data submitted was adjusted by - 4 ppm due to offset in span calibration
10/2/2008 21:17	xCO2_Air	383.3344455	3	CO2 data submitted was adjusted by - 4 ppm due to offset in span calibration
10/25/2008 0:17	xCO2_SW	519.4595538	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
10/25/2008 3:17	xCO2_SW	496.2428507	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
10/25/2008 6:17	xCO2_SW	494.6185872	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
10/25/2008 9:17	xCO2_SW	489.5684271	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
10/25/2008 12:17	xCO2_SW	492.7424764	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
10/25/2008 15:17	xCO2_SW	495.4888258	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
10/25/2008 18:17	xCO2_SW	490.4189346	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
10/25/2008 21:17	xCO2_SW	495.2603771	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
10/26/2008 0:17	xCO2_SW	500.1026505	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
10/26/2008 3:17	xCO2_SW	497.4346656	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
10/26/2008 6:17	xCO2_SW	505.2327762	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
10/26/2008 9:17	xCO2_SW	489.0382445	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
10/26/2008 12:17	xCO2_SW	506.6480069	3	likely bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
11/2/2008 21:17	xCO2_SW	540.4879772	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
11/3/2008 0:17	xCO2_SW	495.5208133	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
11/3/2008 3:17	xCO2_SW	535.3449639	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
11/3/2008 6:17	xCO2_SW	527.3314681	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
11/3/2008 21:17	xCO2_SW	499.0540753	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
11/4/2008 0:17	xCO2_SW	505.2125529	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
11/18/2008 0:17	xCO2_SW	478.6767863	3	CO2 data submitted was adjusted by - 3 ppm due to offset in span calibration
11/18/2008 0:17	xCO2_Air	382.6049135	3	CO2 data submitted was adjusted by - 3 ppm due to offset in span calibration
12/4/2008 21:17	xCO2_SW	493.6429316	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/5/2008 0:17	xCO2_SW	504.6759899	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/5/2008 3:17	xCO2_SW	545.459911	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/5/2008 6:17	xCO2_SW	529.7784913	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/5/2008 9:17	xCO2_SW	528.0082833	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement

12/5/2008 12:17	xCO2_SW	513.0769809	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/5/2008 15:17	xCO2_SW	487.6509081	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/5/2008 18:17	xCO2_SW	487.6161154	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/5/2008 21:17	xCO2_SW	516.5095789	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/6/2008 0:17	xCO2_SW	528.7656748	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/6/2008 3:17	xCO2_SW	532.825411	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/6/2008 6:17	xCO2_SW	532.39704	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/6/2008 9:17	xCO2_SW	539.9902915	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/6/2008 12:17	xCO2_SW	522.877303	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/6/2008 15:17	xCO2_SW	485.4940519	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/6/2008 18:17	xCO2_SW	480.9731148	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/6/2008 21:17	xCO2_SW	484.7851738	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/7/2008 0:17	xCO2_SW	516.1433939	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/7/2008 3:17	xCO2_SW	498.1402108	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/7/2008 6:17	xCO2_SW	489.2974383	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/7/2008 9:17	xCO2_SW	513.2099874	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/10/2008 12:17	xCO2_SW	541.2043123	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
12/31/2008 9:17	xCO2_SW	493.9587227	3	CO2 data submitted was adjusted by - 5 ppm due to offset in span calibration
12/31/2008 9:17	xCO2_Air	385.5256178	3	CO2 data submitted was adjusted by - 5 ppm due to offset in span calibration
12/31/2008 12:17	xCO2_SW	501.8296344	3	CO2 data submitted was adjusted by + 6 ppm due to offset in span calibration
12/31/2008 12:17	xCO2_Air	384.9189001	3	CO2 data submitted was adjusted by + 6 ppm due to offset in span calibration
1/21/2009 0:17	xCO2_SW	489.1564732	3	CO2 data submitted was adjusted by + 3 ppm due to offset in span calibration
1/21/2009 0:17	xCO2_Air	383.519148	3	CO2 data submitted was adjusted by + 3 ppm due to offset in span calibration
2/3/2009 0:17	xCO2_SW	529.175013	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
2/3/2009 3:17	xCO2_SW	519.3330081	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
2/3/2009 6:17	xCO2_SW	500.2731529	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
2/3/2009 9:17	xCO2_SW	508.69701	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
2/3/2009 12:17	xCO2_SW	512.830799	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement
2/3/2009 15:17	xCO2_SW	498.6586223	4	bad measurement due to change in equil pump pressure - 300m and 500m pressures show buoy movement



2/3/2009 18:17 xCO2_SW	497.7932667	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/3/2009 21:17 xCO2_SW	499.8183885	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/4/2009 0:17 xCO2_SW	529.4406974	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/4/2009 3:17 xCO2_SW	548.9952735	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/4/2009 6:17 xCO2_SW	505.4726866	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/4/2009 9:17 xCO2_SW	509.4395062	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/4/2009 12:17 xCO2_SW	527.7645488	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/4/2009 15:17 xCO2_SW	504.0996105	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/4/2009 18:17 xCO2_SW	497.6025634	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/4/2009 21:17 xCO2_SW	497.494386	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/5/2009 0:17 xCO2_SW	512.115709	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/5/2009 3:17 xCO2_SW	569.0338157	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/5/2009 6:17 xCO2_SW	501.0957173	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/5/2009 9:17 xCO2_SW	493.5764976	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/5/2009 12:17 xCO2_SW	506.1228016	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/5/2009 15:17 xCO2_SW	503.5895818	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/5/2009 18:17 xCO2_SW	496.7457189	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/5/2009 21:17 xCO2_SW	495.1653495	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/6/2009 0:17 xCO2_SW	541.2016223	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
2/6/2009 3:17 xCO2_SW	537.8126121	4	bad measurement due to change in equil pump pressure -
300m and 500m pressures show buoy movement			
3/21/2009 18:17 xCO2_SW	493.1910354	3	CO2 data submitted was adjusted by - 2 ppm due
to offset in span calibration			
3/21/2009 18:17 xCO2_Air	386.6641229	3	CO2 data submitted was adjusted by - 2 ppm due
to offset in span calibration			
4/8/2009 18:17 xCO2_SW	527.6617276	4	bad CO2 air and sw data as span begins to run out
4/8/2009 18:17 xCO2_Air	418.7817507	4	bad CO2 air and sw data as span begins to run out
4/8/2009 21:17 xCO2_SW	528.0124879	4	bad CO2 air and sw data as span begins to run out
4/8/2009 21:17 xCO2_Air	417.6439055	4	bad CO2 air and sw data as span begins to run out
4/9/2009 0:17 xCO2_SW	534.5840923	4	bad CO2 air and sw data as span begins to run out
4/9/2009 0:17 xCO2_Air	418.2321971	4	bad CO2 air and sw data as span begins to run out
4/9/2009 3:17 xCO2_SW	533.9053062	4	bad CO2 air and sw data as span begins to run out
4/9/2009 3:17 xCO2_Air	418.3503943	4	bad CO2 air and sw data as span begins to run out
4/9/2009 6:17 xCO2_SW	526.1063266	4	bad CO2 air and sw data as span begins to run out
4/9/2009 6:17 xCO2_Air	418.9417617	4	bad CO2 air and sw data as span begins to run out
4/9/2009 9:17 xCO2_SW	523.9176177	4	bad CO2 air and sw data as span begins to run out
4/9/2009 9:17 xCO2_Air	418.7398091	4	bad CO2 air and sw data as span begins to run out
4/9/2009 12:17 xCO2_SW	522.9445393	4	bad CO2 air and sw data as span begins to run out
4/9/2009 12:17 xCO2_Air	418.3028077	4	bad CO2 air and sw data as span begins to run out

4/9/2009 15:17	xCO2_SW	523.9923252	4	bad CO2 air and sw data as span begins to run out
4/9/2009 15:17	xCO2_Air	416.8791252	4	bad CO2 air and sw data as span begins to run out
4/9/2009 18:17	xCO2_SW	518.9823257	4	bad CO2 air and sw data as span begins to run out
4/9/2009 18:17	xCO2_Air	413.8555292	4	bad CO2 air and sw data as span begins to run out
4/9/2009 21:17	xCO2_SW	514.4006183	4	bad CO2 air and sw data as span begins to run out
4/9/2009 21:17	xCO2_Air	410.1105213	4	bad CO2 air and sw data as span begins to run out
4/10/2009 0:17	xCO2_SW	517.656939	4	bad CO2 air and sw data as span begins to run out
4/10/2009 0:17	xCO2_Air	409.4771327	4	bad CO2 air and sw data as span begins to run out
4/10/2009 3:17	xCO2_SW	515.2146137	4	bad CO2 air and sw data as span begins to run out
4/10/2009 3:17	xCO2_Air	408.5447391	4	bad CO2 air and sw data as span begins to run out
4/10/2009 6:17	xCO2_SW	511.3684089	4	bad CO2 air and sw data as span begins to run out
4/10/2009 6:17	xCO2_Air	408.6678346	4	bad CO2 air and sw data as span begins to run out
4/10/2009 9:17	xCO2_SW	508.4330807	4	bad CO2 air and sw data as span begins to run out
4/10/2009 9:17	xCO2_Air	407.063882	4	bad CO2 air and sw data as span begins to run out
4/10/2009 12:17	xCO2_SW	508.5086394	4	bad CO2 air and sw data as span begins to run out
4/10/2009 12:17	xCO2_Air	405.7582168	4	bad CO2 air and sw data as span begins to run out
4/10/2009 15:17	xCO2_SW	507.9278639	4	bad CO2 air and sw data as span begins to run out
4/10/2009 15:17	xCO2_Air	404.3078361	4	bad CO2 air and sw data as span begins to run out
4/10/2009 18:17	xCO2_SW	505.0975698	4	bad CO2 air and sw data as span begins to run out
4/10/2009 18:17	xCO2_Air	402.2950926	4	bad CO2 air and sw data as span begins to run out
4/10/2009 21:17	xCO2_SW	498.4780072	4	bad CO2 air and sw data as span begins to run out
4/10/2009 21:17	xCO2_Air	396.1697329	4	bad CO2 air and sw data as span begins to run out
4/11/2009 0:17	xCO2_SW	503.2647008	4	bad CO2 air and sw data as span begins to run out
4/11/2009 0:17	xCO2_Air	396.8334613	4	bad CO2 air and sw data as span begins to run out
4/11/2009 3:17	xCO2_SW	502.0008084	4	bad CO2 air and sw data as span begins to run out
4/11/2009 3:17	xCO2_Air	393.3155085	4	bad CO2 air and sw data as span begins to run out
4/11/2009 6:17	xCO2_SW	504.4211058	4	bad CO2 air and sw data as span begins to run out
4/11/2009 6:17	xCO2_Air	398.7055017	4	bad CO2 air and sw data as span begins to run out
4/11/2009 9:17	xCO2_SW	502.2090465	4	bad CO2 air and sw data as span begins to run out
4/11/2009 9:17	xCO2_Air	398.4374072	4	bad CO2 air and sw data as span begins to run out
4/11/2009 12:17	xCO2_SW	495.6852219	4	bad CO2 air and sw data as span begins to run out
4/11/2009 12:17	xCO2_Air	395.089154	4	bad CO2 air and sw data as span begins to run out
4/11/2009 15:17	xCO2_SW	491.3207779	4	bad CO2 air and sw data as span begins to run out
4/11/2009 15:17	xCO2_Air	392.5536082	4	bad CO2 air and sw data as span begins to run out
4/11/2009 18:17	xCO2_SW	485.0352734	4	bad CO2 air and sw data as span begins to run out
4/11/2009 18:17	xCO2_Air	387.3888325	4	bad CO2 air and sw data as span begins to run out
4/11/2009 21:17	xCO2_SW	473.1238085	4	bad CO2 air and sw data as span begins to run out
4/11/2009 21:17	xCO2_Air	374.2440302	4	bad CO2 air and sw data as span begins to run out
4/12/2009 0:17	xCO2_SW	484.9029504	4	bad CO2 air and sw data as span begins to run out
4/12/2009 0:17	xCO2_Air	380.5569103	4	bad CO2 air and sw data as span begins to run out
4/12/2009 3:17	xCO2_SW	485.0003559	4	bad CO2 air and sw data as span begins to run out
4/12/2009 3:17	xCO2_Air	381.2934717	4	bad CO2 air and sw data as span begins to run out